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IBM CORPORATION

YORKTOWN PATENT OPERATIONS

T. J. WATSON RESEARCH CENTER

P.O. BOX 218

YORKTOWN HEIGHTS NEW YORK 10598-0218

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PAGE

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FOCUS - 1 OF 23 PATENTS

5,501,808

<=2> GET 1st DRAWING SHEET OF 5

Mar. 26, 1996

Crystalline-like transition metal material

INVENTOR: Patalano, Philip, 521 Lauiki St. #6, Honolulu, Hawaii 96826

DETDISC:

... polymers. The compounds of the present invention, like the linear transition metal acetylides, can obtain high molecular weights. However, the compounds of this invention are two-dimensional and three-dimensional in structure with many compounds being ceramic-like.

Compounds of the present invention can be produced by reacting anhydrous transition metal halide with alkali metal and/or alkaline earth metal acetylides (C2<2 - > = acetylide) in an inert atmosphere following ...

PAGE 2

FOCUS - 2 OF 23 PATENTS

5,490,977

Feb. 13, 1996

Removal of CO, hydrocarbons and NO x with catalyst
containing platinum rhodium

INVENTOR: Wan, Chung-Zong, Somerset, New Jersey
Tauster, Samuel J., Englishtown, New Jersey
Rabinowitz, Harold N., Upper Montclair, New Jersey

SUM:

... continuous and open-ended gas flow passages extending therethrough. The catalytic material is dispersed as a coating on the carrier, specifically, on the walls of the gas flow passages thereof. Such carriers are normally made of a refractory, ceramic-like material such as cordierite, mullite, alumina, or any other suitable refractory material; they may also be made of a refractory metal such as stainless steel or other suitable corrosion-resistant, iron based alloys.

The ...

FOCUS - 3 OF 23 PATENTS

5,434,125

<=2> GET 1st DRAWING SHEET OF 1

Jul. 18, 1995

PAGE 3

Rare earth oxide superconducting material and process for
producing the same

INVENTOR: Ogawa, Naoyuki, Anjo, Japan
Sakai, Takenobu, Susono, Japan
Hirabayashi, Izumi, Nagoya, Japan

DETEDESC:

... material of rare earth oxide superconducting material. It is also possible to obtain a shaped material by spray- or powder-coating the above-mentioned mixed powder on a substrate made of a metal, a ceramic or the like to form a layer of rare earth oxide superconducting material on the substrate.

The temperature equal to or higher than the incongruent melting point of
ired rare earth oxide superconducting material, used in the present invention
PAGE 4

FOCUS - 4 OF 23 PATENTS

5,395,821

<=2> GET 1st DRAWING SHEET OF 3

Mar. 7, 1995

Method of producing Pb-stabilized superconductor precursors
and method of producing superconductor articles therefrom

INVENTOR: Kroeger, Donald M., Knoxville, Tennessee
Hsu, Huey S., Knoxville, Tennessee
Brynestad, Jorulf, Oak Ridge, Tennessee

SUM:

... transition temperature above 77o K. thereby allowing liquid nitrogen to
used as the cryogenic material.

The high temperature superconducting materials generally consist of metal
oxides bonded together to form a ceramic-like structure. In one method of
production, the metal oxides are mixed together as solids and heated at
sintering temperatures of 700o C. to 1100o C. The sintered material is then
reground and reheated. The material is pressed into pellets and ...

PAGE 5

FOCUS - 5 OF 23 PATENTS

5,378,345

<=2> GET 1st DRAWING SHEET OF 6

Jan. 3, 1995

Ceramic solid electrolyte-based electrochemical oxygen

W3

concentrator cell

INVENTOR: Taylor, Dale M., Salt Lake City, Utah
Josh, Ashok V., Salt Lake City, Utah

DETDISC:

... ingredients may be incorporated to enhance the structural properties of the electrolyte. For example, minor quantities of ZrO_2 , HfO_2 and the like may be utilized as well as minor amounts of alumina, mullite and like ceramic oxides to enhance sintering or structural properties.

The ionic conductivity (mobility of the oxygen ion) of the ceria electrolytes of this invention is significantly better than zirconia or hafnia electrolytes, for example, or even certain ceria or bismuth oxide ...

PAGE 6

FOCUS - 6 OF 23 PATENTS

5,376,625

<=2> GET 1st DRAWING SHEET OF 1

Dec. 27, 1994

Method of making thin film superconductor assembly

INVENTOR: McCune, Robert C., Birmingham, Michigan

DETDISC:

... 20 can be formed of any suitable dielectric material which can achieve good structural integrity with substrate 15 and with superconductor 30 and coating 40. Preferred materials include various commercially available ceramic and ceramic-like materials well known to the skilled of the art. Exemplary such materials include beryllium oxide, diamond or diamond-like thin films, silicon carbide, strontium titanate, aluminum oxide and aluminum nitride. Other suitable

PAGE 7

FOCUS - 7 OF 23 PATENTS

5,348,797

<=2> GET 1st DRAWING SHEET OF 1

Sep. 20, 1994

Copper oxide coated substrates

INVENTOR: Clough, Thomas J., Santa Monica, California
Grosvenor, Victor L., Topanga, California
Pinsky, Naum, Thousand Oaks, California

SUM:

... about 150 microns, extrudates, flakes, single fibers, fiber rovings,

LSW

chopped fibers, fiber mats, porous substrates, irregularly shaped particles, e.g., catalyst supports, multi-channel monoliths, tubes, conduits and the like. Ceramic and metal fibers, especially continuous fibers, are particularly useful substrates when the copper oxide coated substrate is to be used as a superconductor.

The conditions at which each of the steps of the present process occur are effective to obtain the ...

PAGE 8

FOCUS - 8 OF 23 PATENTS

5,338,722

Aug. 16, 1994

Method of forming superconducting oxide ceramic materials having high critical densities of superconducting current

INVENTOR: Takemura, Yasuhiko, Kanagawa, Japan

DETDISC:

... ceramic material in the crucible is maintained for 12 hours, and naturally cooled in order to complete the formation procedure.

In accordance with experiments, the superconducting ceramic material comprised oxide superconducting plate-like ceramic crystals of 10 microns grain diameter. The critical density of superconducting current was measured to be 11000 A/cm².

The increase of the oxygen partial pressure can be carried out at once by ...

PAGE 9

FOCUS - 9 OF 23 PATENTS

5,292,716

Mar. 8, 1994

Oxide superconducting material and process for producing the same

INVENTOR: Sakai, Hitoshi, Komaki, Japan
Yoshida, Hitoshi, Okazaki, Japan
Baba, Hideyuki, Nagoya, Japan
Yoshida, Manabu, Aichi, Japan

DETDISC:

... material of rare earth oxide superconducting material. It is also possible to obtain a shaped material by spray- or powder-coating the above-mentioned mixed powder on a substrate made of a metal, a ceramic or the like to form a layer of rare earth oxide superconducting material on the substrate.

The temperature equal to or higher than the incongruent melting point of the desired REBa₂Cu₃O₇, used in the present invention, varies depending upon the
PAGE 10

...
FOCUS - 10 OF 23 PATENTS

5,279,852

<=2> GET 1st DRAWING SHEET OF 1

Jan. 18, 1994

Process for coating a substrate with copper oxide and uses
for coated substrates

INVENTOR: Clough, Thomas J., Santa Monica, California
Glover, Victor L., Topanga, California
Kosky, Naum, Thousand Oaks, California

SUM:

... about 150 microns, extrudates, flakes, single fibers, fiber rovings, chopped fibers, fiber mats, porous substrates, irregularly shaped particles, e.g., catalyst supports, multi-channel monoliths, tubes, conduits and the like. Ceramic and metal fibers, especially continuous fibers, are particularly useful substrates when the copper oxide coated substrate is to be used as a superconductor.

The conditions at which each of the steps of the present process occur are effective to obtain the ...

PAGE 11

FOCUS - 11 OF 23 PATENTS

5,272,132

<=2> GET 1st DRAWING SHEET OF 4

Dec. 21, 1993

Apparatus comprising a ceramic superconductive body and
method for producing such a body

INVENTOR: Gyorgy, Ernst M., Madison, New Jersey
Johnson, Jr., David W., Pluckemin, New Jersey

SUM:

... used by these workers as being of the "Wayne State University type".

Among the techniques for producing the green bodies are extrusion, screen printing, tape casting, and slip casting. The inventive filamentary and sheet-like ceramic superconductive bodies can be advantageously used in a variety of apparatus including power transmission lines, rotating machinery such as electrical generators, magnets such as may be used in ...

27

DETDESC:

... referred to co-assigned U.S. patent application, the invention is not so limited. We believe that the techniques disclosed herein can, either directly or with obvious changes, be used in general in the manufacture of filamentary and/or sheet-like ceramic oxidic superconductive bodies having at least one relatively small dimension, generally in the approximate range 5 or 10 μm to 1 mm.

Such bodies not only are of substantial technological significance but their ...

... properties. For most favorable results, the material is fired in an ambient environment with greater partial pressure of O_2 than that of air (0.2 atm.).

A significant aspect of the invention is the formation of a filamentary or sheet-like ceramic superconductive body. In general, known techniques can be used to form the given body. These include extrusion, screen printing, tape casting, and slip casting.

The starting materials for each of these processes ...
PAGE 12

FOCUS - 12 OF 23 PATENTS

5,254,519

Oct. 19, 1993

Catalyst composition containing platinum and rhodium components

INVENTOR: Wan, Chung-Zong, Somerset, New Jersey
Tauster, Samuel J., Englishtown, New Jersey
Pabinowitz, Harold N., Upper Montclair, New Jersey

DETDESC:

... continuous and open-ended gas flow passages extending therethrough. The catalytic material is dispersed as a coating on the carrier, specifically, on the walls of the gas flow passages thereof. Such carriers are normally made of a refractory, ceramic-like material such as cordierite, mullite, alumina, or any other suitable refractory material; they may also be made of a refractory metal such as stainless steel or other suitable corrosion-resistant, iron based alloys.

The ...

PAGE 13

FOCUS - 13 OF 23 PATENTS

5,183,799

<=2> GET 1st DRAWING SHEET OF 16

Feb. 2, 1993

Superconducting materials including La-Sr-Nb-O, Y-Ba-Nb-O,
La-Sr-Nb-Cu-O, and Y-Ba-Nb-Cu-O

INVENTOR: Ogushi, Tetsuya, Kagoshima, Japan
Hakuraku, Yoshinori, Kagoshima, Japan
Ogata, Hisanao, Ibraki, Japan

DETDESC:

... laminating this superconducting material with other films of electrical insulating material. It is preferable to laminate a plurality of film-like layers alternately, respectively. Further, it is preferable to use as an insulating material a perovskite-like ceramic of the same series.

Further, in the above-mentioned formulae (1) and (2), a total of valence number (p) of L, A and M, or L, A, M and Cu, and the valence number y of oxygen has ...

PAGE 14

FOCUS - 14 OF 23 PATENTS

5,145,833

Sep. 8, 1992

Method for producing ceramic bodies

INVENTOR: Prunier, Jr., Arthur R., Midland, Michigan
Spangenberg, Stanley F., Midland, Michigan
Wijeyesekera, Sunil, Midland, Michigan

SUM:

... as to retain its configuration and removed from the casting mold.

The pressure-transmitting medium includes a rigid interconnected skeletal structure which is collapsible when a predetermined force is applied. The skeletal structure may be of a ceramic-like material which is rigid and retains its configuration, but which may be broken up, crushed, fractionated or caused to flow at a predetermined relatively minimal force. The skeletal structure is defined by the ceramic material being ...

FOCUS - 15 OF 23 PATENTS

5,132,283

<=> GET 1st DRAWING SHEET OF 1

Jul. 21, 1992

Thin film superconductor assembly and method of making the same

INVENTOR: McCune, Robert C., Birmingham, Michigan

PAGE 15

84

LW

DETDESC:

... 20 can be formed of any suitable dielectric material which can achieve good structural integrity with substrate 15 and with superconductor 30 and coating 40. Preferred materials include various commercially available ceramic and ceramic-like materials well known to the skilled of the art. Exemplary such materials include beryllium oxide, diamond or diamond-like thin films, silicon carbide, strontium titanate, aluminum oxide and aluminum nitride. Other suitable

...

PAGE 16

FOCUS - 16 OF 23 PATENTS

5,057,483

Oct. 15, 1991

Catalyst composition containing segregated platinum and rhodium components

INVENTOR: Wan, Chung-Zong, Somerset, New Jersey

DETDESC:

... parallel, continuous and openended gas flow passages extending therethrough. The catalytic material is dispersed as a coating on the carrier, specifically, on the walls of the gas flow passages thereof. Such carriers are normally made of a refractory, ceramic-like material such as cordierite, mullite, alumina, or any other suitable refractory material; they may also be made of a refractory metal such as stainless steel or other suitable corrosion-resistant, iron based alloys.

The ...

PAGE 17

FOCUS - 17 OF 23 PATENTS

5,049,452

Sep. 17, 1991

Target member used for formation of superconducting film

INVENTOR: Takeshita, Takuo, Saitama, Japan
Sugihara, Tadashi, Saitama, Japan

SUM:

... $\text{cm}^2 > \text{for } 1 \text{ to } 4 \text{ hours}$. The target is fabricated in this manner.

The target thus fabricated is mainly formed of a superconducting ceramic material in the R-A-Cu-O system or of a substance like the ceramic in the R-A-Cu-O system containing the copper oxide (which is hereinbelow represented by CuO) equal to or less than 20% by volume.

However, the composition of the target may be transferred to the composition of the thin film ...

PAGE 18

FOCUS - 18 OF 23 PATENTS

4,975,413

Dec. 4, 1990

Superconductor-coated carbon fiber composites

INVENTOR: Satek, Larry C., Wheaton, Illinois
Bennett, William F., Hartsdale, New York
Schulz, David A., Fairview Park, Ohio

SUM:

... lower superconducting-transition-temperature superconductors is large enough that many new uses for superconductors now can be devised and present uses enormously improved. However, because these new mixed-oxide superconductors are brittle, ceramic-like materials, they do not lend themselves easily to fabrication in the form of high strength, wire-type geometries, a requirement for many important uses to which superconductors have been put in the past. These uses largely ...

PAGE 19

FOCUS - 19 OF 23 PATENTS

4,949,702

<=2> GET 1st DRAWING SHEET OF 4

Aug. 21, 1990

Self-heating container

INVENTOR: Suzuki, Ryoichi, Yokohama, Japan
Maeda, Mitsuo, Tokyo, Japan
Sahara, Motoo, Kamaishi, Japan
Yamauchi, Kunio, Hikone, Japan
Kawabata, Choji, Tatebayashi, Japan
Takeuchi, Akira, Fukaya, Japan
Ando, Koki, Tokyo, Japan

DETDISC:

... DRAWINGS

In FIG. 1, the container includes a cylindrical can or metal casing 20 with its outer side surface surrounded by a heat-insulating cover 22 of paper, plastic, cloth, ceramic or the like. The cover 22 reduces the heat radiation from the can 20, and facilitates the handling of the container.

The can 20 contains a heater 24 near the bottom thereof, the heater including a cylindrical inverted cup-shaped ...

FOCUS - 20 OF 23 PATENTS

PAGE 20

W/10

4,927,857

<=2> GET 1st DRAWING SHEET OF 1

May 22, 1990

Method of methanol production

INVENTOR: McShea, III, William T., Martinsville, New Jersey
Yarrington, Robert M., Westfield, New Jersey

DETDDESC:

... exhibits a low thermal coefficient of expansion, thermal shock resistance, and though not always, low thermal conductivity. Two general types of material of construction for such carriers are known. One is a ceramic-like porous material comprised of one or more metal oxides, for example; alumina, alumina-silica, alumina-silica-titania, mullite, cordierite, zirconia, zirconia-spinel, zirconia-mullite, silicon carbide, etc. ...

... extending therethrough. The sheets and corrugations are sized to provide the desired number of gas flow passages, which may range, typically, from about 200 to 1,200 per square inch of end face of the tubular roll.

Although the ceramic-like metal oxide materials such as cordierite or alumina-silica-titania are somewhat porous and rough-textured, they nonetheless have a relatively low surface area with respect to catalyst support requirements and, of course, a stainless ...

FOCUS - 21 OF 23 PATENTS

4,320,418

<=2> GET 1st DRAWING SHEET OF 9

Mar. 16, 1982

Large area display

INVENTOR: Pavliscak, Thomas J., 2 S 454 Seneca Dr., Wheaton, Illinois 60187

DETDDESC:

... substrate surface inhibits the permanent adherence of some electrode materials to the surface. Therefore, the electrodes are preferably deposited on that glass substrate surface which is free from tin or tin oxide.

In another mode of this invention, the substrate is of a ceramic or ceramic-like material containing one or more oxides such as aluminum oxide, silicon oxide, titanium oxide, zirconium oxide, magnesium oxide, lead oxide, and so forth.

11W

Since visible light generated by the monolithic ...
PAGE 22

FOCUS - 22 OF 23 PATENTS

4,233,623

<=2> GET 1st DRAWING SHEET OF 7

Nov. 11, 1980

Television display

INVENTOR: Pavliscak, Thomas J., 2 S. 454 Seneca Dr., Wheaton, Illinois 60187

DETDESC:

... substrate surface inhibits the permanent adherence of some electrode materials to the surface. Therefore, the electrodes are preferably deposited on that glass substrate surface which is free from tin or tin oxide.

In another mode of this invention, the substrate is of a ceramic or ceramic-like material containing one or more oxides such as aluminum oxide, silicon oxide, titanium oxide, zirconium oxide, magnesium oxide, lead oxide, and so forth.

Since visible light generated by the monolithic ...
PAGE 23

FOCUS - 23 OF 23 PATENTS

3,996,447

<=2> GET 1st DRAWING SHEET OF 2

Dec. 7, 1976

PTC resistance heater

INVENTOR: Bouffard, Michael L., Pawtucket, Rhode Island
Grant, John L., Mansfield, Massachusetts

ABST:

An electrical heater device includes a disc-like ceramic resistor element of a material of positive temperature coefficient of resistivity having contact surfaces formed on a broad opposite sides of the element. A pair of device terminals engage respective contact surfaces of the resistor ...

* 23 PAGES

386 LINES

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* 9:50 A.M. STARTED

9:51 A.M. ENDED

11/26/97

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